

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A video display device modulating luminances of pixels in accordance with a video signal to display video, comprising:

a light source configured to emit said device emitting a first light emission component and a second light emission component per one vertical cycle of the video signal,

the first light emission component accounting for D% of ~~[[a]]~~the vertical cycle of the video signal in terms of duration and S% of a light emission intensity of a pixel over the vertical cycle, the second light emission component accounting for (100-D)% of the vertical cycle in terms of duration and (100-S)% of the light emission intensity;

a driving unit configured to drive the light source based on a control input provided by a controller; and

the controller configured

to determine whether $48 < S < 62$ and to set D to be less than or equal to $(S-48)/0.23$ but greater than zero based on the determination that $48 < S < 62$,

to determine whether $62 \leq S < 100$ and to set D to be less than S but greater than zero based on the determination that $62 \leq S < 100$, and

to provide the control input to the driving unit indicating at least the value of D.

; ~~wherein~~

~~an amount of trailing and an amount of flickering are reduced relative to the amounts of trailing and flickering for $S = 100$ by controlling the first light emission component and the second light emission component so that D and S meet either a set of conditions A:~~

~~$62 \leq S < 100$, $0 < D < 100$, and $D < S$, or~~

~~a set of conditions B:~~

~~$48 < S < 62$, and $D \leq (S - 48)/0.23$.~~

2. (Original) The video display device of claim 1, comprising:

video display means setting transmittances of pixels in accordance with the video signal;

and

a light source body illuminating the video display means,

wherein the light source body controls light emission intensities of the first light emission component and the second light emission component.

3. (Original) The video display device of claim 2, wherein the light source body is a semiconductor light emitting element.

4. (Original) The video display device of claim 3, wherein the semiconductor light emitting element is a light emitting diode.

5. (Original) The video display device of claim 2, wherein the light source body is a cold cathode fluorescent lamp.

6. (Withdrawn) The video display device of claim 1, comprising video display means setting luminances of pixels in accordance with the video signal,

wherein the video display means controls light emission intensities of the first light emission component and the second light emission component.

7. (Withdrawn) The video display device of claim 6, wherein the video display means is an organic EL panel.

8. (Withdrawn) The video display device of claim 6, wherein the video display means is a liquid crystal panel.

9. (Withdrawn) The video display device of claim 6, wherein:
the video display means includes a memory for each pixel to hold information of the video signal; and
the memory is accessed more than once in each vertical cycle of the video signal to enable the pixel to achieve a light emission waveform representing light emission constituted by the first light emission component and the second light emission component.

10. (Withdrawn) The video display device of claim 9, wherein:
the video display means includes a light emitting element for each pixel;
the light emitting element emits light in an amount controlled in accordance with the information held in the memory.

11. (Withdrawn) The video display device of claim 6, wherein:

the video display means is fed with video data reordered in advance in terms of time; and
each pixel is selected three times in each vertical cycle of the video signal to enable the pixel to achieve a light emission waveform representing light emission constituted by the first light emission component and the second light emission component.

12. (Withdrawn) The video display device of claim 1, comprising:
video display means setting transmittances of pixels in accordance with the video signal;
and
a light source body illuminating the video display means,
said device further comprising light control means, disposed in an optical path provided between the video display means and the light source body, controlling an illumination light intensity of the light source body to control light emission intensities of the first light emission component and the second light emission component.

13. (Withdrawn) The video display device of claim 12, wherein the light control means entirely or partially transmits the illumination light of the light source body.

14. (Withdrawn) The video display device of claim 12, wherein the light control means entirely transmits or blocks the illumination light of the light source body.

15. (Withdrawn) The video display device of claim 12, wherein the light source body is a semiconductor light emitting element.

16. (Withdrawn) The video display device of claim 15, wherein the semiconductor light emitting element is a light emitting diode.

17. (Withdrawn) The video display device of claim 12, wherein the light source body is a cold cathode fluorescent lamp.

18. (Withdrawn) The video display device of claim 1, comprising:

video display means setting transmittance in accordance with the video signal; and

a light source body illuminating the video display means,

wherein:

the light source body illuminates the video display means with illumination light obtained by mixing intermittent light represented by a pulsed light emission intensity waveform which is in synchronism with the video signal and continuous light having a constant light emission intensity; and

light emission intensities of the pixels for the first light emission component and the second light emission component are caused by the intermittent light and the continuous light.

19. (Withdrawn) The video display device of claim 18, wherein the intermittent light and the continuous light have a light emission intensity set to a level perceivable by the human eye.

20. (Previously Presented) The video display device of claim 1, comprising scene change detect means detecting an amount of scene change in the video from the video signal, wherein a value of S or D is changed in accordance with the amount of scene change.

21. (Previously Presented) The video display device of claim 1, comprising average luminance level detect means detecting an average luminance level in the video from the video signal, wherein a value of S or D is changed in accordance with the average luminance level.

22. (Withdrawn) The video display device of claim 1, comprising:
video display means setting transmittances of pixels in accordance with the video signal;
and
a light source body illuminating the video display means,
wherein:
the light source body is disposed separated from the video display means; and
the first light emission component and the second light emission component are mixed in a space formed between the light source body and the video display means.

23. (Withdrawn) The video display device of claim 1, comprising:
video display means setting transmittances of pixels in accordance with the video signal;
a light source body outputting the first light emission component and the second light emission component to illuminate the video display means; and

light mixing means mixing the first light emission component and the second light emission component.

24. (Withdrawn) The video display device of claim 23, wherein
the light mixing means is a light guide plate;
the light source body is disposed along a single end face of the light guide plate; and
the light guide plate guides the light obtained by mixing the first light emission component and the second light emission component from the end face along which the light source body is disposed to another end face facing the video display means for output to the video display means.

25. (Withdrawn) The video display device of claim 18, further comprising:
video display means setting transmittances of pixels in accordance with the video signal;
and
a light source body illuminating the video display means,
wherein:
the light source body includes a first light source body emitting the intermittent light and
a second light source body emitting the continuous light; and
there are provided first light source body drive means controlling ON/OFF of the first light source body and second light source body drive means controlling ON/OFF of the second light source body.

26. (Withdrawn) The video display device of claim 25, wherein the first light source body drive means switches on/off at least one of electric power, current, and voltage supplied to the first light source body in synchronism with the video signal.

27. (Withdrawn) The video display device of claim 25, wherein the second light source body drive means supplies at least one of electric power, current, and voltage to the second light source body at a constant level.

28. (Withdrawn) The video display device of claim 25, wherein the second light source body drive means controls at least one of electric power, current, and voltage supplied to the second light source body at a frequency three times a vertical frequency of the video signal or at a higher frequency.

29. (Withdrawn) The video display device of claim 25, wherein the second light source body drive means controls at least one of electric power, current, and voltage supplied to the second light source body at the frequency of 150 Hz or higher.

30. (Withdrawn) The video display device of claim 25, wherein the first light source body and the second light source body are semiconductor light emitting elements.

31. (Withdrawn) The video display device of claim 30, wherein the semiconductor light emitting element is a light emitting diode.

32. (Withdrawn) The video display device of claim 25, wherein the second light source body emits the second light emission component by different light emission principles from the first light source body.

33. (Withdrawn) The video display device of claim 32, wherein at least either one of the first light source body and the second light source body is a semiconductor light emitting element.

34. (Withdrawn) The video display device of claim 33, wherein the semiconductor light emitting element is a light emitting diode.

35. (Withdrawn) The video display device of claim 32, wherein the second light source body is a cold cathode fluorescent lamp.

36. (Withdrawn) The video display device of claim 1, comprising:
intermittent light signal generating means generating an intermittent light signal alternating between ON and OFF in synchronism with the video signal; and
continuous light signal generating means generating a continuous light signal which is always ON,

wherein the first light emission component and the second light emission component are emitted in accordance with an illumination light signal obtained by combining the intermittent light signal and the continuous light signal.

37. (Withdrawn) The video display device of claim 36, wherein the continuous light signal has a frequency three times a vertical frequency of the video signal or at a higher frequency.

38. (Withdrawn) The video display device of claim 36, wherein the continuous light signal has a frequency of 150 Hz or higher.

39. (Withdrawn) The video display device of claim 36, wherein the first light emission component and the second light emission component are emitted by a semiconductor light emitting element.

40. (Withdrawn) The video display device of claim 39, wherein the semiconductor light emitting element is a light emitting diode.

41. (Original) The video display device of claim 1, wherein the second light emission component is formed by a collection of pulse components having a higher frequency than a vertical frequency of the video signal.

42. (Original) The video display device of claim 41, wherein the pulse components have a frequency three times a vertical frequency of the video signal or a higher frequency.

43. (Original) The video display device of claim 41, wherein the pulse components have a frequency of 150 Hz or higher.

44. (Withdrawn) A video display device modulating luminances of pixels in accordance with a video signal to display video, said device comprising:

video display means setting transmittances of pixels in accordance with the video signal;
and

a first light source body emitting intermittent light represented by a pulsed light emission intensity waveform which has the same frequency as that of a vertical synchronization signal of the video signal and a second light source body emitting continuous light, the intermittent light accounting for D% of a vertical cycle of the video signal in terms of duration and S1% of a light emission intensity of a pixel over the vertical cycle, the continuous light accounting for the entire vertical cycle in terms of duration and (100-S1)% of the light emission intensity,

wherein:

the video display means is illuminated by illumination light obtained by mixing the intermittent light and the continuous light; and

light emission of the first light source and the second light source is controlled so as to reduce an amount of trailing and an amount of flickering relative to the amounts of trailing and flickering for $S = 100$.

45. (Withdrawn) The video display device of claim 44, further comprising:
first light source body drive means controlling ON/OFF of the first light source body; and
second light source body drive means controlling ON/OFF of the second light source
body.

46. (Withdrawn) The video display device of claim 45, wherein the first light source body
drive means switches on/off at least one of electric power, current, and voltage supplied to the
first light source body in synchronism with the video signal.

47. (Withdrawn) The video display device of claim 45, wherein the second light source
body drive means supplies at least one of electric power, current, and voltage to the second light
source body at a constant level.

48. (Withdrawn) The video display device of claim 45, wherein the second light source
body drive means controls at least one of electric power, current, and voltage supplied to the
second light source body at a frequency three times a vertical frequency of the video signal or at
a higher frequency.

49. (Withdrawn) The video display device of claim 45, wherein the second light source
body drive means controls at least one of electric power, current, and voltage supplied to the
second light source body at a frequency or 150 Hz or higher.

50. (Withdrawn) The video display device of claim 44, wherein the first light source body and the second light source body are semiconductor light emitting elements.

51. (Withdrawn) The video display device of claim 50, wherein the semiconductor light emitting element is a light emitting diode.

52. (Withdrawn) The video display device of claim 44, wherein the second light source body emits the continuous light by different light emission principles from the first light source body.

53. (Withdrawn) The video display device of claim 52, wherein at least either one of the first light source body and the second light source body is a semiconductor light emitting element.

54. (Withdrawn) The video display device of claim 53, wherein the semiconductor light emitting element is a light emitting diode.

55. (Withdrawn) The video display device of claim 52, wherein the second light source body is a cold cathode fluorescent lamp.

56-59. (Canceled).

60. (Previously Presented) The video display device of claim 1, comprising histogram detect means detecting a histogram of the video from the video signal, wherein a value of S or D is changed in accordance with the histogram.

61. (Currently Amended) A video display device modulating luminances of pixels in accordance with a video signal to display video, comprising:

a light source configured to emit ~~said device emitting~~ a first light emission component and a second light emission component per one vertical cycle of the video signal,

the first light emission component accounting for D% of ~~[[a]]~~the vertical cycle of the video signal in terms of duration and S% of a light emission intensity of a pixel over the vertical cycle, the second light emission component accounting for (100-D)% of the vertical cycle in terms of duration and (100-S)% of the light emission intensity~~[[,]]~~;

~~wherein:~~

~~D and S meet either a set of conditions A:~~

~~$62 \leq S < 100$, $0 < D < 100$, and $D < S$; or~~

~~a set of conditions B:~~

~~$48 < S < 62$, and $D \leq (S - 48)/0.23$;~~

~~an amount of trailing and an amount of flickering for $S = 100$ are simultaneously reduced by controlling the first light emission component and the second light emission component~~

a driving unit configured to drive the light source based on a control input provided by a controller; and

the controller configured

to determine whether $48 < S < 62$ and to set D to be less than or equal to $(S-48)/0.23$ but greater than zero based on the determination that $48 < S < 62$,

to determine whether $62 \leq S < 100$ and to set D to be less than S but greater than zero based on the determination that $62 \leq S < 100$,

to determine whether $S=100$ to set D so that $D/2 \leq P \leq (100-D/2)$, and $0 < D < 100$, where P is a ratio in percentages of a duration to the vertical cycle, the duration beginning at a start of the vertical cycle and ending at a midpoint of a light emission period associated with the first light emission component, based on the determination that $S = 100$, and

to provide the control input to the driving unit indicating at least the value of D .

62. (Currently Amended) The video display device of claim 61, wherein

$P = 50 + K$ for $0 \leq K \leq (50-D/2)$,

where K is a constant dictated by a response time constant of the video display ~~means~~ device.

63. (Canceled).

64. (Previously Presented) The video display device of claim 61, comprising:

video display means setting transmittances of pixels in accordance with the video signal;
and

a light source body illuminating the video display means,
wherein the light source body controls P.

65. (Original) The video display device of claim 64, wherein the light source body is a semiconductor light emitting element.

66. (Original) The video display device of claim 65, wherein the semiconductor light emitting element is a light emitting diode.

67. (Original) The video display device of claim 64, wherein the light source body is a cold cathode fluorescent lamp.

68. (Currently Amended) The video display device of claim 64, wherein the light source body changes P in value from one area to another, [[the]]a video display screen of the video display device being divided into the areas.

69. (Withdrawn) The video display device of claim 61, comprising video display means setting luminances of pixels in accordance with the video signal,
wherein the video display means controls P.

70. (Withdrawn) The video display device of claim 69, wherein the video display means is an organic EL panel.

71. (Withdrawn) The video display device of claim 69, wherein the video display means is a liquid crystal panel.

72. (Withdrawn) The video display device of claim 69, wherein:
the video display means includes a memory for each pixel to hold the video signal; and
the memory is accessed more than once in each vertical cycle of the video signal to enable the pixel to achieve a light emission waveform representing light emission constituted by the first light emission component and the second light emission component.

73. (Withdrawn) The video display device of claim 72, wherein:
the video display means includes a light emitting element for each pixel;
the light emitting element emits light in an amount controlled in accordance with the information held in the memory.

74. (Withdrawn) The video display device of claim 69, wherein:
the video display means is fed with video data reordered in advance in terms of time; and
each pixel is selected three times in each vertical cycle of the video signal to enable the pixel to achieve a light emission waveform representing light emission constituted by the first

light emission component and the second light emission component.

75. (Withdrawn) The video display device of claim 61, comprising:

video display means setting transmittances of pixels in accordance with the video signal;

and

a light source body illuminating the video display means,

said device further comprising light control means, disposed in an optical path provided between the video display means and the light source body, controlling an illumination light intensity of the light source body to control P.

76. (Currently Amended) A video display method ~~including~~ for modulating luminances of pixels in accordance with a video signal to display video, said method comprising:

emitting a first light emission component and a second light emission component once per vertical cycle of the video signal, the first light emission component accounting for D% of a vertical cycle of the video signal in terms of duration and S% of a light emission intensity of a pixel over the vertical cycle, the second light emission component accounting for (100-D)% of the vertical cycle in terms of duration and (100-S)% of the light emission intensity[.];

determining whether $48 < S < 62$ and setting D to be less than or equal to $(S-48)/0.23$ but greater than zero based on the determination that $48 < S < 62$;

determining whether $62 \leq S < 100$ and setting D to be less than S but greater than zero based on the determination that $62 \leq S < 100$; and

controlling the emitting the first light emission based on at least a determined value of D.

~~wherein~~

~~an amount of trailing and an amount of flickering for $S = 100$ are reduced by controlling the first light emission component and the second light emission component so that D and S meet either a set of conditions A:~~

~~$62 \leq S < 100$, $0 < D < 100$, and $D < S$, or~~

~~a set of conditions B:~~

~~$48 < S < 62$, and $D \leq (S - 48)/0.23$.~~